FINAL HPNS RAD Q&As
March 31, 2015

ANOMALOUS SOIL SAMPLING Q&A

How did the Navy determine that soil samples had been collected from locations different than the ones specified in the work plan documents?
The Navy reviews field data collected by Navy contractors, including soil sample results. During a routine review of the Navy's contractor data, the Navy determined that some of the soil sample results were not consistent with the results from previous soil samples collected in the same general area. This prompted the Navy to request further evaluation by the contractor to determine the cause and extent of the data inconsistency.

Did the Navy take and test soil samples of the correct locations to determine the actual results?
No, the Navy has not conducted any independent verification sampling. Instead, the Navy required the contractor to sample all locations identified as not being properly sampled.

Is the Navy responsible for identifying mistakes in soil sample results?
Yes, in accordance with the terms and conditions of the contract, the Navy's contractor is responsible for identifying and correcting any errors associated with their work under the contract. The Navy is ultimately responsible for ensuring all cleanup actions, including sampling at the former Hunters Point Naval Shipyard (HPNS) and other Navy cleanup sites are performed in accordance with the requirements under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

What is the Navy's response to Tetra Tech's investigation into why the soil sample discrepancy occurred?
The Navy determined that the contractor investigated various possible causes for the soil sample discrepancy and implemented several corrective actions to ensure the incident does not reoccur (i.e., conducting additional field oversight, conducting additional training, and supplementing their internal data review methods). The Navy continuously to monitors contractor performance to ensure that adequate quality control and data evaluation processes are in place.

Q3: Had the Navy not caught this would sites have been released with radionuclides of concern still in existence there?
No. If the Navy did not identify the issue, the next step would not have been to release the area in question. Rather, the report would have been submitted to the State of California regulatory agencies for review and approval. The California Department of Public Health review process is thorough and includes an independent analysis on a portion of all soil samples collected by the Navy to further validate the data.

Did Parcel C trenches get retested? If not, why not? If so, what were the results?
For Parcel C trenches 234, 238, and 242, samples were collected adjacent to the trenches. For Parcel C trench 302, the trench was re-excavated and resampled. Results for all of these additional samples were less than the HPNS release criteria.

What is the Navy doing about the incident?
The Navy implemented additional contract oversight standards to ensure actions remain in place to prevent future discrepancies.

Does this event call into question the quality of data provided by Tetra Tech in the past?
The Navy continues to evaluate all current and historic data collected by the contractor. The Navy is committed to ensuring that all reports contain accurate and defensible data.

Why hasn't the Navy fired TtEC? What contractually is the Navy doing to hold TtEC accountable?
Contractors' evaluations are not public information. The Navy requires all of its contractors to comply with all laws and regulations applicable to the conduct of the Navy's environmental cleanup program.

What is the Navy's response to the lawsuit being filed by the former TtEC employees?
It is inappropriate for the Navy to comment on ongoing litigation between third parties.

How many samples or areas were improperly sampled and where were they located?
Tetra Tech reviewed 87,360 samples. This includes all samples in the TtEC database, which contains results going back to mid-2005. Of the 87,360 samples reviewed, 386 samples appeared anomalous or "suspect" and these nineteen locations were resampled. Seventy-four of the 386 samples in question have been shown, upon resampling, to be unrepresentative of the locations from which they were collected.

After the investigation, further remediation was performed in Parcel E at the 500 Series Area, Building 517 footprint, 707 Triangle Area, and Shack 79/80, and in Parcel C at the North Pier.

How many trucks may have improperly transported radiological contamination through the Hunters Point community because of this incident?
None. The concern was that contaminated soil may have remained in the ground above the cleanup criteria. The Navy has no indication that the processes and procedures for segregating excavated soil for offsite disposal as radiological waste are not being implemented as required. The Nuclear Regulatory Commission (NRC) conducted an investigation on April 7th and 8th, 2014 and also found no violations in relation to the soil screening and disposal processes.

Does this incident pose a risk to public and worker health and safety?
No. At no time were any of the areas in question released to the public. The confirmation sampling continues to validate that there was no contamination that would have posed an unacceptable risk to the public or workers.

Are background levels of Radium-226 at HPNS high? How do the background levels of Radium-226 compare to the established health based levels?
The background levels of Radium-226 at HPNS are consistent with radium levels found throughout the Bay area. There are locations within California that have significantly higher naturally occurring Ra-226 levels than those found at HPNS, that are not considered a health hazard.

What does the Navy know about the former worker who passed away that was implicated in the matter?
The Navy was saddened to hear of the news of the passing of Mr. Ray Roberson and extend our sympathy to his friends and family.

PARCEL C IMPROPER SOIL DISPOSAL Q&A

Why wasn't the soil off-hauled from "Parcel C" at Hunters Point Naval Shipyard being tested for RAD?
The soil that was off-hauled from Parcel C is from a non-radiological CERCLA Remedial Action for Remedial Units (RUs) -C1, -C4, and -C5. Soil in these areas is evaluated as not radiologically impacted and therefore is not screened for radiological contamination. However, as a preventive measure, trucks leaving Hunters Point Naval Shipyard must pass through a portal monitor to ensure no radiological activity is present in the soil. The Nuclear Regulatory Commission (NRC) conducted an investigation on April 7th and 8th, 2014 and concluded that radiological testing of the soil under the chemical removal action was not required since it had been previously cleared under a separate project.

How does the Navy screen and segregate radiologically contaminated soil from non-radiologically contaminated soil?
The Navy process starts with high-density sampling for elevated radiological readings of each area of potential contamination. If elevated readings are found, soil is excavated from these areas and taken to designated Radiologically Controlled Areas (under strict access and procedural control), where the soils are laid down on top of screening pads in 1,000 m^2 by 6 in. deep pads (constructed to prevent cross contamination with the ground beneath). A sensitive radiation scan is performed over 100 percent of the surface and additional soil samples are collected for detailed evaluation. Any areas in the grid exceeding the established release criteria is then remediated and placed in proper radiological disposal bins for disposal at a licensed landfill outside of the State of California. This screening process is then repeated in those areas following remediation.

Was potentially radiologically contaminated soil transported through the Bayview neighborhood and improperly disposed of at a California Landfill?

No. No radiological soils were improperly transported or disposed of in California. Radiologically contaminated soils are placed in bins that are approved by the Department of Transportation for shipping low level radioactive waste. The bins have -covered hard tops that are sealed and locked. The bins are properly marked and labeled per DOT regulations prior to leaving the site for disposal in a permitted facility outside of the state of California. The soils discussed in the NBC news story have been confirmed to not be radiologically contaminated through soil sampling that was conducted by the Navy.

MISC RAD Q&A

Were tanks hauling contaminated water from HPNS not tested for radiation or cleared for disposal?

Tank rental companies require the tanks to be empty and clean before they will remove them from a project site and by their design cannot be transported with liquids in them. Therefore, it is highly unlikely that any tanks containing water left HPNS. The last storage tank to store potentially radioactive water occurred in fall 2011. While working to release the underground vault for former Building 529, the Navy contractor discovered the vault contained a significant volume of water. Due to the potential for radioactive contamination present in the vault, the Navy contractor pumped this water into a temporary storage tank and properly posted the tank. The postings notified people of the potential for radioactive contamination in the water. The water in the tank was sampled and analyzed for radionuclides of

concern. Sample results demonstrated the water did not exceed the radiological release criteria. The water was later discharged in accordance with procedures established by the local utilities authority.

What about the former worker's allegations that he witnessed violations of protocols regarding the proper storage of contaminated radiation detection devices and inadequate signage and barriers to keep the public out of radioactive areas that had not been cleared?

Following the airing of the interview with the former worker, the Navy looked into the specific allegation of improper storage and inadequate signage/barriers of radioactive areas. The Navy identified no violations.

In addition, the Nuclear Regulatory Commission (NRC) conducted an investigation into TtEC at HPNS on April 7th and 8th, 2014. Based on a review of records and procedures and discussion with site personnel, the inspector concluded that TtEC had implemented site-specific radiation control procedures, with good procedure adherence demonstrated. Radiation workers and laborers were trained to perform their duties before beginning work and received annual refresher training. Daily safety/radiation briefings were held before beginning of work every morning. Dosimetry was issued to all employees entering the radiation controlled areas and exchanged monthly. All exposures were substantially less than the NRC occupational annual whole body dose limits and consistent with background radiation. Survey instruments were appropriate for site conditions and calibrated in accordance with manufacturer's recommendations. All radiological postings were as required. Radiation workers observed in the performance of their duties appeared knowledgeable of their responsibilities and work requirements. In summary, the NRC concluded that Tetra Tech EC, Inc. trained workers in radiation safety practices, used proper dosimetry to monitor exposures as necessary, and has a radiation safety staff available on site for oversight of the remediation work.

PORTAL MONITOR Q&A

Why was the detector alarm set point raised to 8.5 standard deviations above background in 2011 from the original 6 standard deviations above background in 2008?

The Navy's portal alarm is set at a very sensitive and conservative level. Most portal monitors at landfills are set much higher to prevent false positive alarms. Although the monitor comes from the factory set at 6 deviations above background, the Navy adjusted the alarm set point due to the higher variability of background radiation which decreased the number of false alarms. The Navy's transportation and disposal company use of aluminum walled trucks that cause false alarms due to the aluminum allowing more of the background radiation from the load within the truck to reach the portal monitor detectors.

The increase from 6 to 8.5 standard deviations above background equates to a screening threshold from 0.7 microrem/hour to approximately 1 microrem/hour above the total natural background which is about 5 microrem/hour.

Have trucks ever left HPNS that never passed through the portal monitor?

Trucks hauling material with known elevated radiation levels being transported out of state intended for radiological transportation to a radiological disposal site are not required to pass through the portal monitor. These trucks follow strict DOT transportation regulations for transporting radioactive material. Also, delivery-type trucks and trucks hauling material and equipment (e.g., porta-potties, fuel) are not required to go through the portal monitor. However, all other trucks hauling chemical material offsite

are required to pass through the portal monitor. Waste already identified as radioactive is properly containerized, manually screened to DOT requirements, shipped, and disposed of at a permitted radioactive waste facility outside of the state of California.

Has a truck ever failed the portal monitor and/or subsequent hand scanning at HPNS?
As the portal monitor is very sensitive and alarm set points are set low, many trucks have failed the initial and subsequent screening passes through the portal monitor. Trucks can cause an alarm due to variations in the background radiation level from naturally occurring materials in the shipment. However, only one truck has ever failed the final hand scanning in 2011. The truck was not allowed to leave the site and was directed to return to the radiological control area for further evaluation. There the contents were spread out, surveyed by hand, and sampled for further analysis. A radium-226 device was identified and properly disposed. This demonstrates that the portal monitor surveys and procedures are effective in ensuring that materials with elevated radiation are evaluated and not improperly disposed.

Have devices been detected by the portal monitor?

Yes, the portal monitor has successfully detected radioactive material in trucks that were scheduled to transport material off-site for disposal. When this occurs, TtEC directs the truck to take the material to a Radiological Screening Yard for further processing. A documented example of this occurred on October 4, 2011. A truck was not approved for release after alarming at the portal monitor and failing a hand scan. The material was returned to the radiological screening yard for further processing where a radium device was discovered.

Once it was determined that the screening process had missed a radiological device, all survey work was immediately stopped and an investigation was conducted to determine how the device ended up the truck bed. A follow on investigation attributed the failure to that of a technician to detect elevated readings when reviewing data from a gamma scan of one of the screening pads where the truck load originated from. All data reviewed to date was re-evaluated and it was determined this particular anomaly was the only item missed. All individuals involved in the screening process were retrained. An increased level of review was implemented to ensure that no further devices could be missed.

ALPHA SCANNING Q&As

What is the alpha scan speed issue at Hunters Point Naval Shipyard (HPNS)?
In July 2013, Tetra Tech EC, Inc. (TtEC) informed the Navy that 21 buildings at HPNS were not surveyed per approved procedures; specifically, alpha scans were conducted faster than the scan speed identified in the work plan. The Navy is collaborating with TtEC and the state regulators to resolve this issue.

How did the Navy become aware of the alpha scan speed issue?
The Navy's contractor, Tetra Tech, discovered and reported the issue to the Navy.

Are there people occupying any buildings that might have been incorrectly surveyed (alpha scanned)?
None of the buildings identified by TtEC as being improperly alpha scanned are currently leased. A Navy contractor is utilizing office space within a small portion of Building 439. Building 439 was only impacted in a small corner of the building and this area is not currently being utilized.

What is the anticipated reuse for these buildings?
The city plans to demolish all of these buildings prior to redevelopment.

Why are alpha scans performed?
Alpha scans are conducted over surfaces such as floors or walls to detect radioactive elements (radionuclides) of concern (ROC) that emit alpha radiation. Alpha scans are performed to determine if alpha emitting ROCs are present and, if so, at what concentrations.

Why are alpha scans so challenging?
After being emitted, alpha particles travel very short distances, even through air (less than a half of an inch). Also, alpha particles are easily stopped by very thin materials, such as a piece of paper. These factors make alpha particles difficult to detect. Therefore, special instruments (detectors) must be held very close to the surveyed surface (less than a quarter of an inch) and moved over the surface slowly to detect alpha particles.

How does the Navy plan to resolve the alpha scan issue?
The Navy is working very closely with the regulatory agencies to determine what rework will be necessary to ensure proper clearance of the surveyed areas in question.

Is the alpha scan issue a concern for public health?
No. There are numerous other indicators based on the data collected that show that there was no contamination remaining within the buildings surveyed that would pose an unacceptable risk nor have any of the buildings been released to the public.